The High 5

Do Development Finance Institutions Put Their Funds Where Their Mandate Is?

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Industrialise Africa

Working Paper Series
n° 369
March 2023
African Development Bank Group

AFRICAN DEVELOPMENT BANK GROUP

Working Paper No. 369

Abstract

Development finance institutions (DFIs) play important roles in providing support to private sector operations in developing countries. While they implement different types of operations, lines of credit (LOCs) to banks are the preferred instruments for DFIs to reach small-scale borrowers such as Small and Medium Enterprises (SMEs) in the real sector. These banks have greater local knowledge and are well-positioned to carry out adequate due diligence on SMEs. For some DFIs, these operations are becoming quite dominant in their lending portfolios. The characteristics of banks that receive these LOCs may say something about whether these funds end up reaching small-scale firms. Using data on DFIs' LOCs approvals in Africa between 2007 and 2019, we find that banks that receive LOCs from DFIs are significantly larger (in terms of assets, equity, and liabilities), have higher asset quality, and have higher returns on assets and equity. While this profile on banks is consistent with adequate risk mitigation by DFIs, it may be less consistent with development considerations that motivate the use of LOCs in the first place. What's more, the pattern of DFIs' LOC approvals may reinforce bank concentration, which could limit competition in the banking sector. The policy implications are that, given the high-risk ratings DFIs enjoy, they are best placed to increase support to small banks that work closely with SMEs and clients in underserved segment of the credit market in Africa. In addition, more proactive measures should be put in place ex ante to ensure prioritization of expected development outcomes from LOCs provided by DFIs to large banks.

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Produced by the Macroeconomics Policy, Forecasting, and Research Department

Coordinator
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Citation: Gajigo O., E. B. Nyantakyi, F. H. Kemeze, and M. Bah (2022), Do Development Finance Institutions Put Their Funds Where Their Mandate Is?, Working Paper Series N° 369, African Development Bank, Abidjan, Côte d'Ivoire.

Do Development Finance Institutions Put Their Funds Where Their Mandate Is?

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Key words: Development Finance, Bank, Africa, Small and Medium-sized Enterprises

JEL Codes: F65, G23, N27, H32

1. Introduction

Banks are the most important actors in the financial market in African countries, and their intermediation role is crucial for efficient allocation of capital. Without access to finance for real sector firms, investments that are needed for the provision of goods and services and the generation of employment cannot occur. Despite the dominant role of banks—mostly commercial banks—in the African financial sector, firms' access to finance is highly limited, partly because banks are frequently incapable of providing long-term finance, which is typically needed for investments by real sector firms. The difficulty that banks have in providing long-term financing is driven by their limited access to long-term capital, which causes them to rely on mostly short-term deposits.

The above reality is the main motivation for the intervention of development finance institutions (DFIs) in the African financial market. By DFIs, we mean international financial institutions that provide private sector financing on commercial terms. We differentiate this from multilateral development banks, which provide financing to sovereign entities, often at concessional rates[1]. DFIs design and implement many projects as part of their efforts to alleviate financing constraints for the private sector.

DFIs' support to banks is usually done in the form of direct equity, the provision of a corporate loan (with varying levels of seniority of the debt), guarantees, or lines of credit (LOC) to be on-lent to local real sector firms. To improve access to finance for firms, particularly small and medium-sized enterprises (SMEs), the principal instrument DFIs use is an LOC. This instrument is typically provided on long-term basis to enable the recipient banks to provide longer-maturity loans to their eligible clients.

LOCs to financial intermediaries are particularly important because the ultimate recipients are often too small for DFIs to provide them with financing directly. An LOC is viewed as an effective way to reach high number of SMEs that have limited ways to accessing outside funding. Banks are close to the ground and therefore are better positioned to target these highly constrained firms, while ensuring that the necessary risk assessments are adequately carried out. This way, DFIs should be able to improve access to finance for firms without

[1] Some institutions such as the AfDB provide both sovereign and non-sovereign operations, though these operations are typically executed by different units.

incurring prohibitive costs, while at the same time contributing to financial sector development by providing long-term capital to banks.

The development impact of LOCs depends on effective targeting of appropriate beneficiaries, which are mostly SMEs. Given the need to go through banks to target SMEs, confirming that intended beneficiaries receive the financing is crucial in ensuring that the development goal is met. This is not always easy because required reporting on lending activities by banks that receive these LOCs is often inadequate (AfDB 2018).

This paper attempts to shed further light on whether DFI-provided LOCs are likely to lead to meeting development objectives, which include enhancing financial sector competition and access to finance for SMEs by analyzing the characteristics of the recipient banks. By taking advantage of evidence in the banking literature, we are able to answer the above question without relying on the inadequate reporting on lending from beneficiary banks. Our paper is particularly complementary to evaluations of LOCs by DFIs that rely primarily on operations reporting by DFIs themselves and banks that receive these LOCs (AfDB 2018; World Bank Independent Evaluation Group 2006; World Bank Independent Evaluation Group 2006b).

To shed some light whether DFI reach their development objectives through LOCs, we use data from DFIs' approvals of LOC transactions to African financial intermediaries (mostly banks) between 2007 and 2019 to determine whether the recipient institutions' characteristics are consistent with the DFIs' expected development goals. Our data set is composed of publicly available information on the approved DFI transactions, complemented by banking information from BankFocus. We found that financial intermediaries that receive DFI lines of credit are typically much larger in terms of assets, liabilities, equity, and employment than those that do not receive any DFI financing. In addition, the beneficiaries of DFI funding have lower non-performing loans (NPLs), and higher returns on assets and equity. While this profile of banks may be critical to ensure the financial sustainability of LOCs for DFIs, it raises some questions about the likelihood of reaching intended targets in the real sector. We discuss how some of these different profiles of financial intermediaries may have consequences for banking competition and access to finance for SMEs.

2. Data Description

The paper relies on BankFocus[2] database and the record of approved DFIs' lines of credit transactions[3] between 2007 and 2019. Moody's BankFocus publishes bank information, including shareholders, financial statements, credit ratings, year of establishment. A total of 844 banks operating in 54 African countries[4] were identified in the BankFocus database between 2007 and 2019. Of the 844 banks, 136 banks in 34 African countries benefited from at least one LOC from a DFI over that period. Out of the 136 that benefited from a DFI LOC, 49 banks in the sample received such an instrument from at least 2 different DFIs between 2007 and 2019.

The DFIs considered in this study are those that are more prominent in the African market. They include 3 multilateral DFIs[5] and 13 bilateral DFIs[6]. About 54% of the banks that benefited from DFIs' LOC received them from multilateral DFIs. Table 1 shows the number of banks each DFI supported. The 5 DFIs that supported the most banks in Africa were AfDB (44 banks), IFC (37), Proparco (34), DFC (32), BII (26), and FMO (26).

The mean (median) asset of banks in the sample is about USD 4.73 billion (USD 0.60 billion) compared with the USD 6.73 billion (USD 0.83 billion) for banks that benefited from DFIs' LOC transactions and the USD 16.80 billion (USD 2.34 billion) for banks that benefited from AfDB. In terms of equity, the overall mean (median) is USD 0.46 million (USD 0.07 billion), compared with USD 0.64 billion (USD 0.10 billion) for banks that benefited from DFIs' on-lending transactions and USD 1.54 billion (USD 0.26 billion) for banks that benefited from AfDB's on-lending transactions. The mean (median) liabilities of banks included in the

[2]BankFocus is a comprehensive database of over 45,900 banks across the globe. https://www.bvdinfo.com/en-us/our-products/data/international/bankfocus

[3] Disclosed DFIs' on-lending transaction information were gathered from DFIs' websites.

[4] Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Democratic Republic of Congo, Djibouti, Egypt, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea Bissau, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Swaziland, Togo, Tunisia, Uganda, United Republic of Tanzania, Zambia, and Zimbabwe.

[5] The 3 multilateral DFIs are the African Development Bank (AfDB), the European Investment Bank (EIB), and the International Finance Cooperation (IFC).

[6] The 13 bilateral DFIs are Proparco, U.S. International Development Finance Corporation (DFC), British International Investment (BII) (previously the CDC Group), Dutch Entrepreneurial Development Bank (FMO), Norwegian Investment Fund for Developing Countries (Norfund), Belgian Investment Company for Developing Countries (BIO), Spanish Development Finance Corporation (COFIDES), Sweden state-owned risk capital company (Swedfund), Austrian Development Bank (OeEB), Finnish Fund for Industrial Cooperation (FINNFUND), German Investment and Development Corporation (DEG), Danish Development Finance Institution (IFU), and the Swiss Development Finance Institution (SIFEM).

sample is USD 4.26 billion (USD 0.51 billion), compared with USD 6.10 billion (USD 0.74 billion) for banks that benefited from DFI's on-lending transactions and USD 15.25 billion (USD 2.12 billion) for banks that benefited from AfDB's on-lending transactions. And the mean (median) number of employees in banks in the study is 2,786 (652) compared with 3,811 (786) in banks that benefited from DFI's on-lending transactions and 7,658 (3,118) for banks that benefited from AfDB's on-lending transactions.

Table 1: Number of banks supported by DFIs in Africa between 2007 and 2019

DFIs	Number of Banks
AfDB	44
IFC	37
Proparco	34
DFC	32
BII	26
FMO	26
BIO	14
EIB	10
Norfund	7
COFIDES	4
Swedfund	4
OeEB	3
FinnFund	2
DEG	2
IFU	1
Sifem	1

Source: Authors' calculations, based on BankFocus data and disclosed DFI LOCs.

3. What kind of banks do DFIs target for Lines of Credit?

The banks that benefit from LOCs from DFIs are not representative or a random sample of all banks on the continent. This is not unexpected. After all, several considerations influence the selection criteria of DFIs. DFIs have strategic priorities that guide their private sector operations, including LOCs, which should be expected to inform whether selected banks have the required sector expertise. And these DFI priorities should also be aligned not only with the relevant countries' development priorities but also with existing market contexts.

a. Beneficiaries of DFI LOCs versus non-beneficiaries

Our results show significant differences in size between banks that received DFI support and those that did not between 2007 and 2019 (Figures 1 and 2). This size difference is reflected in assets, liabilities, equity, and workforce. Due to the presence of some outliers for measures of size, we use median values instead of the mean. The median value of assets for banks that received DFI support was about USD 0.827 billion. This was significantly higher than the median asset size of those that did not receive any DFI financing, for which the median was

USD 0.512 billion. The median liabilities of banks that received DFI financing was USD 0.742 billion versus those that did not (USD 0.43 billion). The difference in median equity between those that receive DFI financing (USD 0.642 billion) versus those that did not (USD 0.412 billion) was significant and stayed stable over the period. The median number of employees for DFI client bank was 786 while that of non-DFI client bank was 574. This difference in size was stable through the period. Furthermore, the significance of the size effect is confirmed in a multivariable regression controlling for bank and country variables.

Figure 1: Median difference between banks that received DFI LOCs versus those that did not

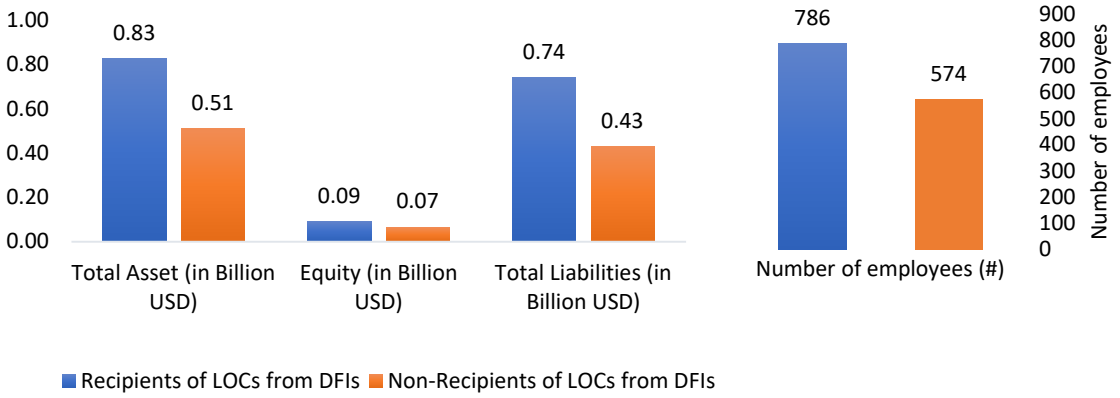
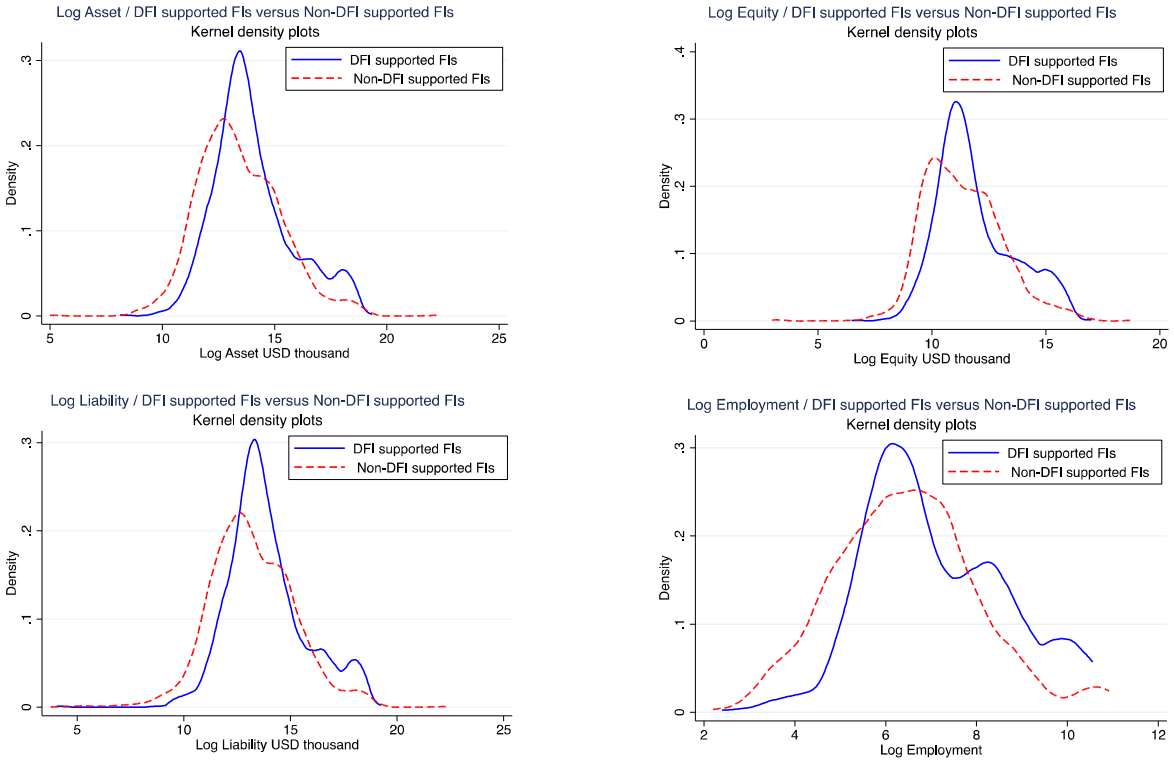
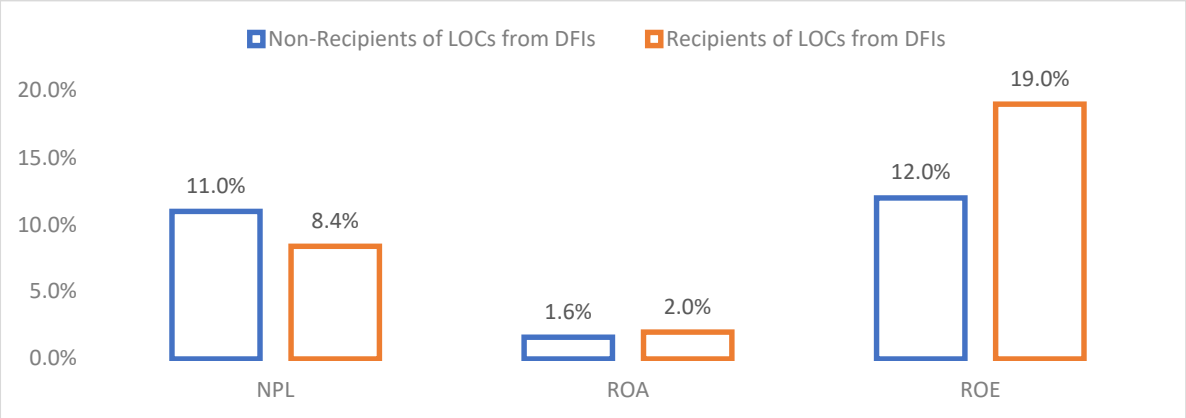


Figure 2: Assets, equity, liabilities, and employment distributions



Other areas where there are some differences are asset quality and returns (Figure 3). The average non-performing loan ratio (NPL) of those receiving DFI funding was 8.4%, which is significantly lower than for those that did not receive DFI LOCs (11%). Given this differential in NPL and its known effect on bank profitability (Velliscig et al., 2022; Salike and Ao, 2018), it is not surprising that differences on returns to assets (ROA) and returns on equity (ROE) also show differences between the two groups of banks. Specifically, the average ROA for DFI and non-DFI clients was 2% and 1.6%, respectively, while the average ROE for DFI and non-DFI clients was 19% and 12%, respectively. The differential in ROE and ROA was constant throughout the period under consideration, as well as across sub-regions.

Figure 3: Bank performance difference between those that received DFI LOCs and those that did not (2007–2019)



It is notable that the difference in asset quality narrowed over the period 2007–2019. As presented in Table A3 in the appendix, between 2011 and 2015, DFI clients had an NPL ratio (6.7%) that was about half of those non-DFI client banks (12.6%). However, over the period 2016–2019, the average NPL of DFI clients (9.5%) became slightly higher than those of banks that did not receive DFI financing (9.2%), an insignificant difference.

b. Differences between AFDB clients and those of other DFIs

While the AfDB is similar to other DFIs in terms of its objectives when it comes to interventions in the banking sector, we found significant differences between the characteristics of its clients and those of other DFIs (Figures 4 and 5). These gaps mirror the differences between the beneficiaries of DFIs and those for banks that do not benefit from DFI LOCs.

AfDB clients were significantly larger than those of other DFIs. Specifically, the median value of assets and liabilities for AfDB clients between 2007 and 2019 were USD 2.3 billion and USD 2.1 billion, respectively. For other DFIs, the median values of assets and liabilities were USD 0.69 billion and USD 0.6 billion, respectively. The median equity for AfDB clients is USD 0.26 billion, while that of other DFIs is USD 0.07 billion. AfDB clients had a median employee size of 3,118 versus those of other DFIs with median size of 585.

Beyond the difference between the AfDB and other DFIs, what is immediately notable is that the difference in size between banks beneficiaries of DFIs and banks non-beneficiaries of DFIs is driven largely by the AfDB. Indeed, when AfDB client banks are excluded, the indicators of size for clients of other DFIs show that they are smaller in terms of assets, liabilities, equity, and workforce. The preference for large clients by the AfDB relative to other DFIs increased over the period 2007–2019.

Figure 4: Median between size of AfDB versus other DFIs LOC beneficiary banks

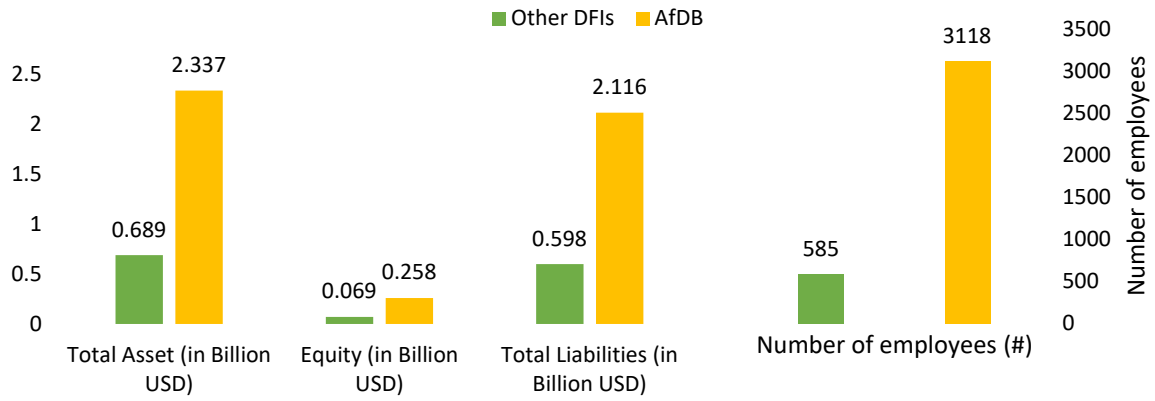
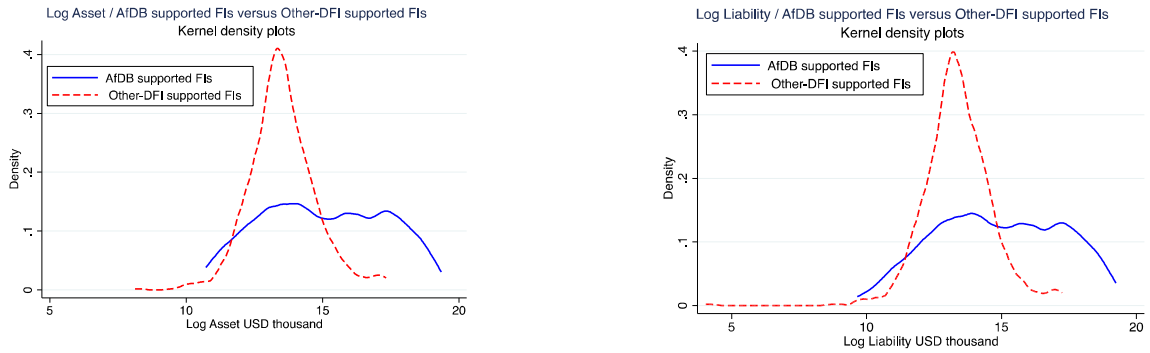
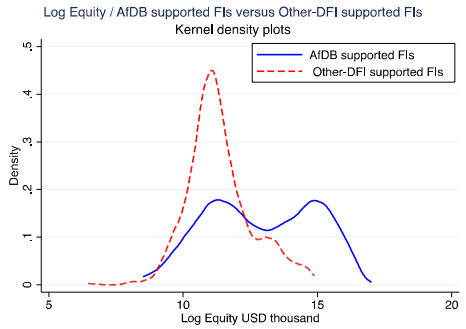
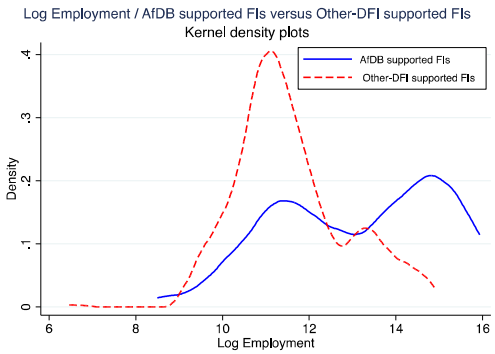


Figure 5: Distribution of the natural logs of assets, equity, liabilities, and employment of AfDB clients and those of other DFIs

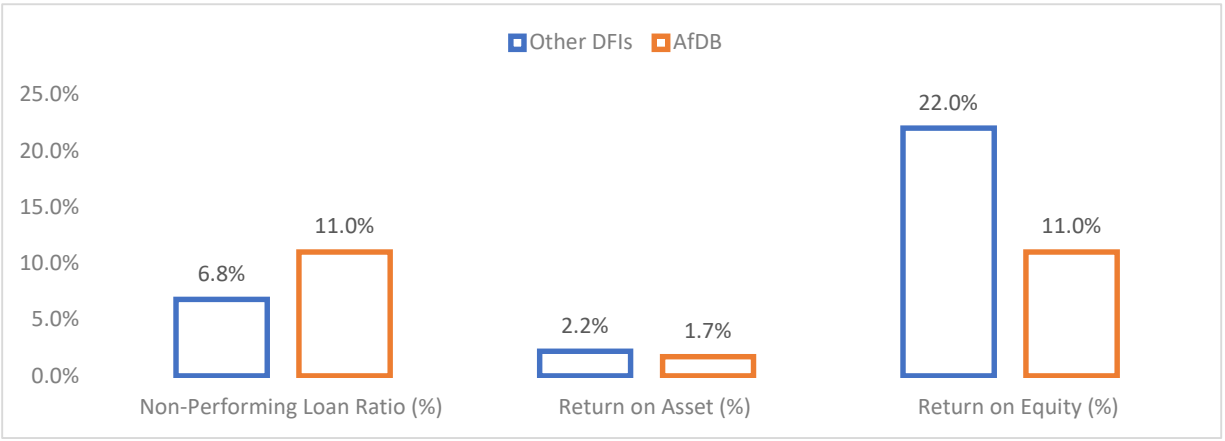






Despite having larger banks as clients, the performance of AfDB client banks is lower than those of other DFIs (Figure 6). The NPL of AfDB client banks averaged 11% while those of other DFIs averaged 6.8%. The ROA and ROE of AfDB clients were 1.7% and 11%, respectively, over 2011–2019, while the ROA and ROE of other DFIs were 2.2% and 22%, respectively. While the difference in bank performance remained stable in terms of most indicators, the difference in ROE between AfDB's clients and that of other DFI clients narrowed over time, at 18.3%–7.5% for AfDB clients and 25.8% for other DFIs' clients, respectively, during 2007–2015, narrowing to 2%–16% for AfDB clients and 18% for other DFIs' clients, respectively, during 2016–2019.

Figure 6: Difference in median performance between banks that received LOCs from the AfDB versus those that received them from other DFIs



c. Differences between clients of multilateral DFIs and those of bilateral DFIs

We distinguish between bilateral and multilateral DFIs. Bilateral DFIs are usually owned by a single country to support private sector development in developing countries. While both bilateral and multilateral DFIs source their capital from national governments, the latter are significantly larger and have much greater reach and higher credit ratings, backed by strong

capital base from multiple creditworthy countries. For both bilateral and multilateral DFIs, operations to support the financial sector through LOCs constitute a significant part of their non-sovereign engagements.

The client banks of multilateral DFIs are much larger than those of bilateral DFIs (Figures 7, 8, and 9). The median values of assets and liabilities for multilateral DFIs are USD 1.29 billion and USD 1.14 billion, respectively. For bilateral DFIs, the median values of assets and liabilities are USD 0.55 billion and USD 0.48 billion, respectively. The median equity for banks receiving LOCs from multilateral DFIs is USD 0.15 billion, while the median for clients of bilateral DFIs is USD 0.06 billion. The average number of employees for multilateral DFIs is more than tripe that for bilateral DFIs (1,330 versus 572). The difference between multilateral and bilateral DFIs in size of bank clients remains even after excluding the AfDB.

Figure 7: Difference in size between clients of bilateral and multilateral DFIs in terms of assets, equity, liabilities, and number of employees

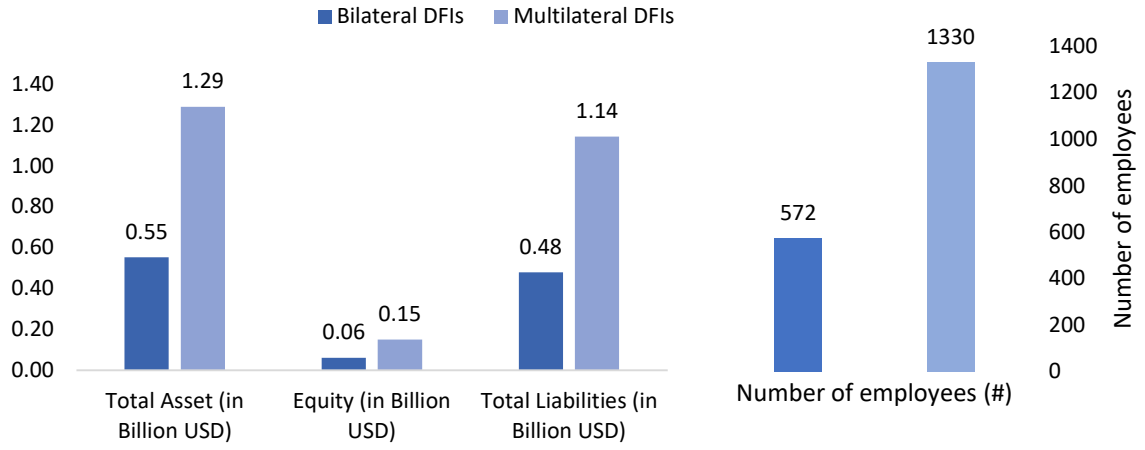
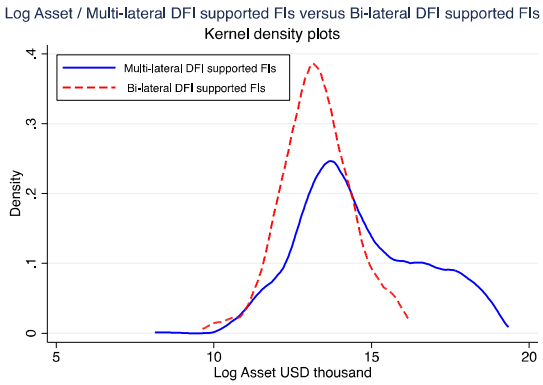


Figure 8: Distributions of the natural logs of assets, equity, liabilities, and employment between bilateral and multilateral DFIs


Log Asset / Multi-lateral DFI supported FIs versus Bi-lateral DFI supported FIs
Kernel density plots
Multi-lateral DFI supported FIs
Bi-lateral DFI supported FIs
Density
0
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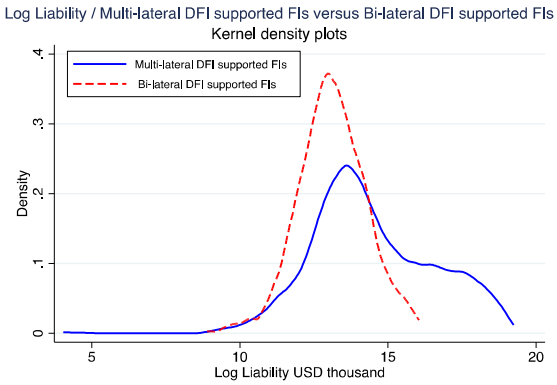
Log Asset USD thousand


Log Liability / Multi-lateral DFI supported FIs versus Bi-lateral DFI supported FIs
Kernel density plots
Multi-lateral DFI supported FIs
Bi-lateral DFI supported FIs
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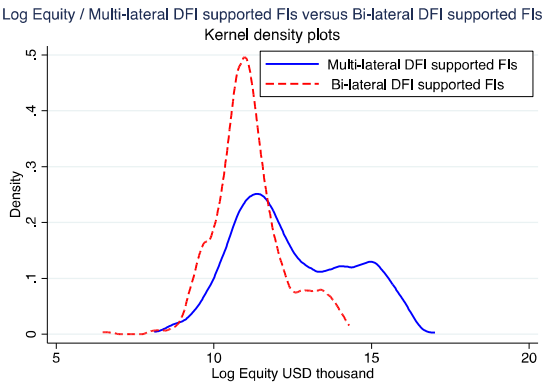
Log Liability USD thousand


Log Equity / Multi-lateral DFI supported FIs versus Bi-lateral DFI supported FIs
Kernel density plots
Multi-lateral DFI supported FIs
Bi-lateral DFI supported FIs
Density
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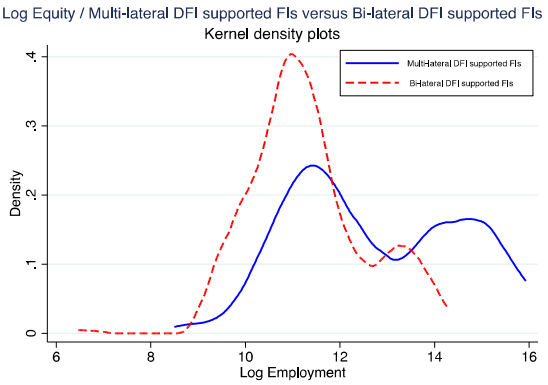
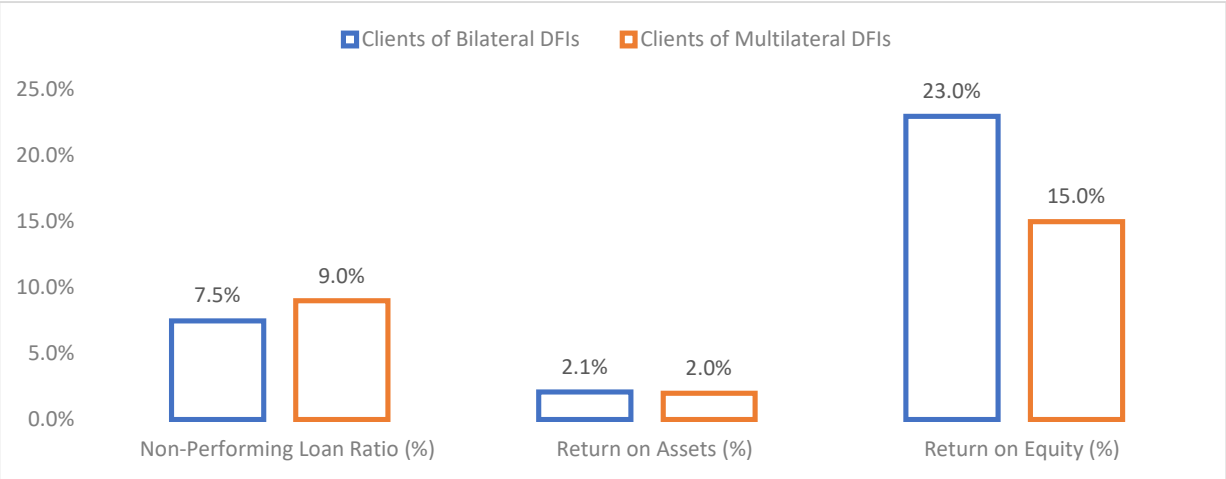
Log Equity USD thousand



The asset quality for banks financed by bilateral DFIs is slightly better than for those financed by multilateral DFIs, as reflected in the NPLs, at 7.5% for the former and 9% for the latter. However, based on the limited sample size, the difference in this indicator is not statistically significant (Figure 9). The average ROA for bilateral (2.1%) and multilateral (2%) DFI client banks is almost equal. On the other hand, there is a significant difference in ROE, at 23% for the clients of bilateral DFIs and 15% for the clients of multilateral DFI clients. The small gap for ROA and NPL stayed roughly the same while the difference in ROE narrowed over time. The difference in average ROE between bilateral DFIs' clients and multilateral DFIs' clients is 14.5%–28% for bilateral DFI clients and 13.5%% for multilateral DFI clients, respectively – over the period 2007–2015. This difference narrowed down to 0.7%–17.7% for bilateral DFIs' clients and 17% for other DFIs' clients, respectively, over 2016–2019.

Figure 9: Financial performance of banks that benefit from financing from bilateral and multilateral DFIs



4. Risk mitigation is a major determinant of DFIs' LOCS

DFI financing of financial intermediaries is done on commercial terms, with recipient banks often paying market interest rates on these lines of credit, similar to other sources of external financing. In addition, DFIs are credit-rated financial institutions, which affects the ease with which they in turn raise financing from the market, primarily through bond issuances. It is crucial for the long-term financial sustainability of DFIs that their provision of LOCs to financial intermediaries be commercially sustainable. This means that the recipient banks must be able to repay the loans in a timely manner so as not to jeopardize the financial positions of DFIs. Therefore, a key necessary condition for banks to perform their financial intermediation role in providing credit to real sector firms is that they, in turn, are financially sound.

As shown earlier, the ROA and ROE are much higher for DFI-supported banks than non-DFI- supported banks. Those results are consistent with the empirical literature, which finds that the larger banks in Africa are more profitable than their smaller counterparts (Flamini et al. 2009). In addition, larger banks are more stable than smaller ones (Shehzad et al 2013; Regehr and Sengupta 2016). An unstable or non–financially sound banking sector can result in a banking crisis,

which may cause a more general financial crisis for an economy and effectively shut down banks' ability to carry out their essential financial intermediation roles.

The literature on banking provides considerable evidence on the bank profitability and credit access. High NPLs have a negative effect on bank profitability, which in turns reduces the growth of loans (Vinh 2017). In addition, profitable banks are more likely to diversify their lending activities (Flamini et al. 2009).

Banks may be financially sound but still not lend out as much as policymakers would want them. Other factors, such as the degree of capitalization, also matter. Indeed, more capitalized banks are also more likely to lend. Gambacorta and Shin (2016) found that a 1 percentage point increase in equity to total asset ratio is associated with a reduction in borrowing cost. This lower cost of capital translates into higher likelihood of lending by banks. Like capitalization, size is also a contributory factor to lending. Amidu (2014) finds that larger banks are associated with higher lending, when other variables are appropriately controlled.

The profile of banks targeted by DFIs is consistent with the conditions required to meet the development goals for these LOCs. In other words, these clients are larger, highly profitable, and have higher asset quality. This demonstrates that DFIs carry out their due diligence roles when it comes to risk mitigation.

It is instructive that among the DFIs active on the African continent, the bank clients of AfDB's are the largest in terms of assets, liabilities, and equity. These banks also have the highest NPL ratios, as well as the lowest ROE and ROA relative to those of other DFIs. Given the correlates of the above bank variables, these AfDB clients are less risky than those of other DFIs. A likely explanation of this pattern is that, because AfDB's exposure is fully concentrated on the continent, which is considered riskier than other regions of the world (Asiedu 2002; Collier and Patillo 2000), it has less room to avoid targeting riskier banks than do other multilateral and bilateral DFIs, which can spread their risks across multiple continents with countries that have favorable risk perceptions than African countries.

5. Implications for development impact of LOCs

As mentioned earlier, the development case for extending LOCs to banks is strong. However, while the profiles of banks that receive these LOCs appear financially sound, it is important to ask whether these are consistent with the development mandates of these DFIs. The mandate of DFIs is inclusive economic development and poverty reduction. Specifically, we focus on the implications on the competitive aspect of financial sector development and on access to finance for SMEs.

a. Bank concentration and competition in the banking sector

The finding that DFIs tend to fund banks in Africa that are significantly larger has important implications for financial sector development in these countries. It could mean that DFI financing reinforces the market power of the dominant banks, which is likely to reduce competition in the banking sector. Competitiveness plays a central role in financial sector development, boosting efficiency via lower cost of financial products, higher availability of credit, and greater incentives for innovations (Boyd and De Nicoló 2005). Greater competition also enhances bank stability (Brei et al. 2020), which ultimately promotes economic development by relaxing financing constraints.

While it is well established that the banking sector in Africa is concentrated (Ahokpossi 2013; Turk-Ariss 2009; Verhoef 2009), it is not at first obvious that bank concentration is a problem or a reflection of the underlying efficiency whereby bigger banks take increasingly larger share of the market. On the one hand, concentration of an industry could reduce competition and result in larger banks exploiting their market powers by charging higher interest rates than necessary. On other hand, the banking sector could start out as unconcentrated but differences in the efficiencies of individual bank could over time result in more efficient banks gaining an increasingly larger share of the market. Irrespective of the genesis of concentration, it is likely to lead to less competition and attendant negative effects for economic welfare.

The lower the competition in an industry, the lower the incentives for dominant firms to become more efficient. This theoretical argument is also backed by empirical results in the banking literature. Bank size is negatively associated with competition (Bikker et al. 2006). Berger and

Hannan (1998) found that increased concentration is associated with more inefficiencies in banks due to lower competition. This happens because managers in these banks have little incentive to lower costs. More concentrated banks also charge higher interest rates on loans and lower rates on deposits (Corvoisier and Gropp 2001). Ozili (2018) found that concentrated African banking sectors experience more nonperforming loans, which may lead to higher banking instability. Amidu (2014) found that bank concentration is negatively correlated with the volume of lending in Africa.

The issue of concentration is important because the banking sector in Africa underwent significant amount of consolidation, particularly in major economies such as Angola, Nigeria, and South Africa (Barros and Caporale2012; Ezeoha 2007; Verhoef 2009). In the context of consolidation, greater concentration is likely to have more of an adverse effect on competitiveness than would a more fragmented banking industry.

b. Bank size and SME financing

Access to finance for firms, particularly SMEs, is an important development objective for DFIs. African enterprises are less likely to receive financing than their counterparts in other regions of the world. In addition, the bulk of firms in African countries are SMEs and employ 80% to 90% of the continent's workforce (Fjose et al. 2010; Kalidas et al. 2020). Furthermore, size is an important determinant of access to finance, meaning that SMEs are more credit constrained (Beck et al. 2005; Rocha et al. 2011).

Given the development mandate of DFIs, virtually all of them prioritize the targeting of SMEs, for a number of reasons. First, given the prevalence of SMEs, ensuring that these firms have access to adequate finance necessarily entails prioritizing access for this group. Second, given that this segment of firms is more constrained and excluded from formal financing sources, financial inclusion is enhanced by providing them with greater adequate and affordable access. Third, given the greater job creation role mentioned above, relaxing growth constraints for SMEs is likely to create more employment opportunities and reduce poverty rates.

The profiles of DFIs' clients for LOCs have implications for SMEs via at least two possible channels. First, bank size is positively correlated with firm size in terms of loan approvals. In Africa, only about 5% of SMEs are reached by the top 5 banks (Dalberg 2011; World Bank 2011). Second, concentration in the banking sector is likely to have an adverse effect on competition, which may reduce incentives to lend to risky clients such as SMEs.

The fact that banks that receive financing from DFIs are much larger than those without DFI financing has implications for credible targeting of SMEs by DFIs through LOCs. There is strong evidence in the literature that larger banks tend to lend more to larger firms (Cenni et al. 2015). Evidence shows that large banks tend to provide financing based on indicators such as financial ratios, which tend to favor larger firms. On the other hand, smaller banks are more likely to provide financing based on relationship lending technology—also referred as "soft" technology—which relies on qualitative non-transferable information[7]. Indeed, recent evidence shows that small firms that are clients of banks that have grown larger through consolidations actually experience lower employment growth, suggesting that the bigger size of their financial institutions may have adversely affected their access to credit (Huber 2021).

Since SMEs are considered risky, it is unlikely that they would be considered favored clients for banks that have market power and face little competition. Ayalew and Xianzhi (2019) found that greater competition among banks is likely to lead to greater demand from SMEs for external financing and higher loan approvals.

Given the evidence that banks that receive financing by DFIs are significantly larger than those that do not, there appears to be a misalignment between targets of DFI financing and SME prioritization in terms of access to finance. Among DFIs, the AfDB stands out as the DFI with the largest clients for extending LOCs. While this may be positive in terms of having a high-quality group of client banks, it may reduce the likelihood that the institution is reaching SMEs. Indeed, the

[7] Soft technology includes, for example, personal knowledge about the subjective circumstances of the firm, its owner, and its management.

AfDB's independent evaluation of its LOC program found that there is no consistent evidence that banks that benefit from its LOCs target SMEs (AfDB 2018).

6. Conclusion and policy recommendations

The preceding sections show that DFIs do a good job of targeting large banks that have high asset quality and high rates of returns on assets and equity. The prevalence of such well-performing banks suggests that DFIs' commercial risks are major factors in allocating their LOCs. However, these same characteristics raise some concern as to whether the targeted banks are well suited to reaching smaller firms that have difficulty in accessing needed external finance, which is what actually motivates DFIs' interventions in this sector in the first place. It is not surprising that risk mitigation plays a major role in targeting of clients since DFIs are banks. Credit risk consideration is a fundamental part of any bank's operations. However, the development mandate of DFIs also demands that development effectiveness play a central role in their funding decision for financial intermediaries. Most or all DFIs strictly observe the risk limits but there seems to be no corresponding limit on development effectiveness.

One way many DFIs have attempted to address this is to implement mechanisms for ex ante assessment of development impact of projects.[8] This in theory should also ensure that prioritization of expected development outcomes is featured in project approval decisions alongside risk considerations. Given the results of this paper, it appears that the weight given to expected development outcomes needs to be higher. For instance, the paucity of LOC operations in fragile states is particularly glaring.

[8] At the AfDB, the additionality and development outcomes assessment (ADOA) unit provides ex ante assessments of AfDB's private sector project proposals. The unit's assessments help the institution to prioritize project proposals based on expected development impact and additionality. The effectiveness of these assessments in the case of LOC is highly dependent on the quality of information supplied by the banks, which is not always adequate.

We provide the following policy recommendations to address the problem.

- **Increase risk appetite**: While it is understood that increasing LOC approvals for banks that target smaller firms or increasing the share of operations in fragile states may increase the portfolio risk of operations, this extra risk should be manageable for DFIs. This is because DFIs (unlike commercial investors) enjoy high risk ratings and are thus most suited to take this extra risk in relieving financing constraints for SMEs. For instance, all multilateral DFIs operating in Africa are rated AAA, the highest risk rating. While some bilateral DFIs have less than AAA rating, all have at least investment grade rating. Increasing DFIs' appetite for risk to reach more SMEs should be a manageable trade-off.
- **Impose binding development effectiveness targets**: One way development effectiveness could be given greater importance is by ensuring that explicit targets related to development outcomes are set for operations units that originate LOC transactions. This can include setting performance target for operations in fragile and low-income countries where financing needs are particularly acute. Within many DFIs, there are performance targets for lending volume. Such targets need to be augmented with indicators related to development outcomes such as support to SMEs to ensure the development effectiveness that the development mandate of DFIs demands.

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Appendix

Table A1: List of countries covered in the data

Country	Number of banks	Number of DFI - supported Banks	At least one bank in the country benefited from DFI	At least one Bank in the country benefited from multilateral DFI	At least one bank in the country benefited from AfDB
Algeria	19	0	0	0	0
Angola	21	2	1	1	1
Benin	14	2	1	0	0
Botswana	15	2	1	1	0
Burkina Faso	13	4	1	1	1
Burundi	7	0	0	0	0
Cameroon	14	5	1	1	0
Cape Verde	9	0	0	0	0
Central African Republic	2	0	0	0	0
Chad	6	1	1	0	0
Comoros	3	0	0	0	0
Congo	7	1	1	1	0
Côte D'Ivoire	27	7	1	1	0
Democratic Republic of Congo	16	4	1	1	1
Djibouti	11	0	0	0	0
Egypt	37	0	0	0	0
Equatorial Guinea	3	0	0	0	0
Eritrea	2	0	0	0	0
Ethiopia	16	4	1	0	0
Gabon	8	0	0	0	0
Gambia	10	0	0	0	0
Ghana	40	6	1	1	1
Guinea	15	2	1	0	0
Guinea Bissau	3	0	0	0	0
Kenya	45	12	1	1	1
Lesotho	5	0	0	0	0
Liberia	7	2	1	0	0
Libya	14	0	0	0	0
Madagascar	7	2	1	0	0
Malawi	8	4	1	1	0
Mali	13	5	1	1	1
Mauritania	18	2	1	1	1
Mauritius	22	4	1	1	1
Morocco	20	3	1	1	1
Mozambique	17	3	1	1	1
Namibia	16	2	1	1	0
Niger	12	2	1	1	1
Nigeria	29	12	1	1	1
Rwanda	13	6	1	1	1
Sao Tome and Príncipe	4	0	0	0	0
Senegal	25	3	1	1	0
Seychelles	7	0	0	0	0
Sierra Leone	12	2	1	1	1
Somalia	7	0	0	0	0
South Africa	43	7	1	1	1
South Sudan	6	0	0	0	0

Sudan	33	0	0	0	0
Swaziland	5	0	0	0	0
Togo	8	1	1	1	1
Tunisia	24	3	1	1	1
Uganda	22	5	1	1	1
United Republic of Tanzania	41	7	1	1	1
Zambia	18	6	1	1	1
Zimbabwe	25	3	1	0	0

Table A2: Summary statistics of FIs Characteristics (2007–2019)

Variables	No. of observations	Mean	Median	SD	Min	Max
Size						
Total assets (in billion USD)	4392	4.726	.591	16.701	0.00014	252.7
Equity (in billion USD)	4389	.46	.07	1.561	-1.228	26.287
Total liabilities (in billion USD)	4392	4.264	.506	15.304	0.00004	228.3
Number of employees (#)	2021	2786.434	652	6902.137	9	54767
Assets quality/performance						
Non-performing loan ratio (%)	649	9.999	6.1	13.08	.07	125.89
Profitability						
Return on assets (%)	4375	1.723	1.852	4.774	-146.459	45.261
Return on equity (%)	4372	13.624	16.33	107.555	-5882.27	1804.527
2011–2015						
Size						
Total assets (in billion USD)	2352	4.932	.579	17.052	.003	198.7
Equity (in billion USD)	2351	.465	.07	1.499	-1.228	23.661
Total liabilities (in billion USD)	2352	4.466	.495	15.695	0.00004	180.7
Number of employees (#)	1108	2655.937	652.5	6451.304	9	54361
Assets quality/performance						
Non-performing loan ratio (%)	252	11.115	6.13	16.917	.07	125.89
Profitability						
Return on assets (%)	2340	1.813	1.886	4.236	-66.686	45.261
Return on equity (%)	2339	15.38	16.895	76.16	-1844.416	1804.527
2016–2019						
Size						
Total assets (in billion USD)	2040	4.488	.611	16.288	0.00014	252.7
Equity (in billion USD)	2038	.455	.073	1.631	-.794	26.287
Total liabilities (in billion USD)	2040	4.03	.522	14.84	0.00012	228.3
Number of employees (#)	913	2944.803	642	7413.051	11	54767
Assets quality/performance						
Non-performing loan ratio (%)	397	9.291	6.1	9.863	.13	72.9
Profitability						
Return on assets (%)	2035	1.618	1.816	5.325	-146.459	27.239
Return on equity (%)	2033	11.603	15.739	134.917	-5882.27	398.101

Table A3: Characteristics of FIs beneficiary and non-beneficiary DFIs' LOC

	FIs beneficiary of DFIs			FIs non beneficiary of DFIs			Difference	
	No. of observations	**Mean**	**Median**	**No. of observations**	**Mean**	**Median**	**Mean**	**Median**
Size								
Total assets (in billion USD)	933	6.725	0.827	3459	4.186	0.512	2.539***	0.315***
Equity (in billion USD)	931	0.642	0.089	3458	0.412	0.065	0.230***	0.024***
Total liabilities (in billion USD)	933	6.080	0.742	3459	3.774	0.430	2.306***	0.312***
Number of employees (#)	588	3810.560	785.501	1433	2366.207	574.001	1444.353***	211.500***
Assets quality/performance								
Non-performing loan ratio (%)	161	8.403	6.001	488	10.526	6.201	-2.123*	-0.200
Profitability								
Return on assets (%)	931	2.042	2.019	3444	1.636	1.796	0.406**	0.223***
Return on equity (%)	929	18.609	19.354	3443	12.278	15.371	6.331	3.983***
2011–2015								
Size								
Total assets (in billion USD)	513	6.309	0.725	1839	4.548	0.502	1.761**	0.223***
Equity (in billion USD)	512	0.590	0.080	1839	0.430	0.067	0.160**	0.013***
Total liabilities (in billion USD)	513	5.718	0.646	1839	4.117	0.417	1.601**	0.229***
Number of employees (#)	338	3565.728	752.501	770	2256.574	592.001	1309.154***	160.500***
Assets quality/performance								
Non-performing loan ratio (%)	64	6.683	5.051	188	12.624	6.756	-5.941**	-1.705**
Profitability								
Return on assets (%)	511	2.071	2.071	1829	1.741	1.829	0.330	0.242***
Return on equity (%)	510	19.695	19.896	1829	14.177	15.766	5.518	4.130***
2016–2019								
Size								
Total assets (in billion USD)	420	7.234	0.890	1620	3.776	0.518	3.458***	0.372***
Equity (in billion USD)	419	0.705	0.099	1619	0.391	0.064	0.314***	0.035***
Total liabilities (in billion USD)	420	6.523	0.804	1620	3.384	0.450	3.139***	0.354***
Number of employees (#)	250	4141.572	831.001	663	2493.532	549.001	1648.040***	282.000***
Assets quality/performance								
Non-performing loan ratio (%)	97	9.538	6.531	300	9.211	6.016	0.327	0.515
Profitability								
Return on assets (%)	420	2.008	1.995	1615	1.517	1.767	0.491*	0.228***
Return on equity (%)	419	17.287	18.113	1614	10.127	14.628	7.160	3.485***

Table A4: Characteristics of FIs beneficiating from AfDB and other DFIs' LOC

	FI beneficiaries of AfDB			FIs beneficiaries of other DFIs			Difference	
	No. of observations	Mean	Median	No. of observations	Mean	Median	Mean	Median
Size								
Total assets (in billion USD)	309	16.802	2.337	624	1.735	0.689	15.067***	1.648***
Equity (in billion USD)	309	1.535	0.258	622	0.198	0.069	1.337***	0.189***
Total liabilities (in billion USD)	309	15.253	2.116	624	1.537	0.598	13.716***	1.518***
Number of employees (#)	218	7657.963	3118.000	370	1543.711	585.000	6114.252***	2533.000***
Assets quality/performance								
Non-performing loan ratio (%)	68	10.596	6.550	93	6.800	5.280	3.796***	1.270***
Profitability								
Return on assets (%)	308	1.716	1.711	623	2.204	2.136	-0.488**	-0.425***
Return on equity (%)	308	11.298	17.000	621	22.235	21.037	-10.937***	-4.037***
2011–2015								
Size								
Total assets (in billion USD)	171	15.684	2.254	342	1.622	0.633	14.062***	1.621***
Equity (in billion USD)	171	1.400	0.248	341	0.184	0.062	1.216***	0.186***
Total liabilities (in billion USD)	171	14.278	1.981	342	1.437	0.557	12.841***	1.424***
Number of employees (#)	124	7368.290	2983.000	214	1362.374	570.000	6005.916***	2413.000***
Assets quality/performance								
Non-performing loan ratio (%)	23	9.321	6.200	41	5.202	4.000	4.119***	2.200***
Profitability								
Return on assets (%)	170	1.751	1.753	341	2.230	2.140	-0.479	-0.387**
Return on equity (%)	170	7.502	17.577	340	25.792	21.496	-18.290***	-3.919***
2016–2019								
Size								
Total assets (in billion USD)	138	18.187	2.646	282	1.874	0.782	16.313***	1.864***
Equity (in billion USD)	138	1.703	0.334	281	0.215	0.079	1.488***	0.255***
Total liabilities (in billion USD)	138	16.462	2.312	282	1.659	0.684	14.803***	1.628***
Number of employees (#)	94	8040.085	3180.000	156	1792.468	651.500	6247.617***	2528.500***
Assets quality/performance								
Non-performing loan ratio (%)	45	11.247	7.160	52	8.059	6.295	3.188*	0.865
Profitability								
Return on assets (%)	138	1.673	1.665	282	2.171	2.116	-0.498*	-0.451*
Return on equity (%)	138	15.975	16.518	281	17.931	20.265	-1.956	-3.747***

Table A5: Characteristics of FIs beneficiary of multilateral and bilateral DFIs' LoC

	FIs beneficiary of multilateral DFIs			FIs beneficiary of Bilateral DFIs			Difference	
	No. of observations	**Mean**	**Median**	**No. of observations**	**Mean**	**Median**	**Mean**	**Median**
Size								
Total assets (in billion USD)	527	11.104	1.289	406	1.042	0.552	10.062***	0.737***
Equity (in billion USD)	526	1.033	0.150	405	0.133	0.060	0.900***	0.090***
Total liabilities (in billion USD)	527	10.065	1.143	406	0.908	0.479	9.157***	0.664***
Number of employees (#)	347	5476.481	1330.001	241	1411.909	572.001	4064.572***	758.000***
Assets quality/performance								
Non-performing loan ratio (%)	99	8.973	6.041	62	7.493	5.776	1.480	0.265
Profitability								
Return on assets (%)	525	2.013	1.980	406	2.080	2.121	-0.067	-0.141
Return on equity (%)	524	15.012	18.315	405	23.263	21.252	-8.251**	-2.937**
2011–2015								
Size								
Total assets (in billion USD)	295	10.234	1.154	218	0.997	0.508	9.237***	0.646***
Equity (in billion USD)	294	0.936	0.141	218	0.124	0.052	0.812***	0.089***
Total liabilities (in billion USD)	295	9.298	1.081	218	0.872	0.451	8.426***	0.630***
Number of employees (#)	203	5069.222	1300.001	135	1304.919	520.001	3764.303***	780.000***
Assets quality/performance								
Non-performing loan ratio (%)	37	7.173	5.681	27	6.011	4.301	1.162	1.380
Profitability								
Return on assets (%)	293	2.113	2.035	218	2.014	2.087	0.099	-0.052
Return on equity (%)	292	13.490	18.770	218	28.006	21.847	-14.516**	-3.077**
2016–2019								
Size								
Total assets (in billion USD)	232	12.210	1.382	188	1.093	0.589	11.117***	0.793***
Equity (in billion USD)	232	1.157	0.165	187	0.144	0.067	1.013***	0.098***
Total liabilities (in billion USD)	232	11.039	1.255	188	0.950	0.521	10.089***	0.734***
Number of employees (#)	144	6050.604	1550.001	106	1548.170	577.001	4502.434***	973.000***
Assets quality/performance								
Non-performing loan ratio (%)	62	10.047	6.151	35	8.636	7.701	1.411	-1.550
Profitability								
Return on assets (%)	232	1.887	1.877	188	2.157	2.175	-0.270	-0.298
Return on equity (%)	232	16.928	17.411	187	17.733	20.176	-0.805	-2.765

*** p<.01, ** p<.05, * p<.1